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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,208	06/19/2001	Peter Charles Eastty	450110-4271.1	5224

20999 7590 05/08/2003

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EXAMINER

PENDLETON, BRIAN T

ART UNIT

PAPER NUMBER

2644

DATE MAILED: 05/08/2003

b

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,208	EASTTY ET AL.	
	Examiner Brian T. Pendleton	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 June 2001.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-6 and 8-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-3 and 8-14 is/are rejected.

7) Claim(s) 4-6 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2 and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Hellberg. Hellberg discloses an apparatus comprising sigma-delta modulator 410, XOR unit 5100 and code sequence generator 511.

Claims 1, 2 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nettleship, UK Patent Application GB 2 101 849. Nettleship discloses an apparatus comprising input inverter 20, one-bit digital converter 10 and inherently an output inverter (on the receiving side).

Claims 1, 2 and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Jewett. Jewett discloses a system comprising input inverter 48, a transmission medium and output inverter 60.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg in view of Nishio et al. Hellberg discloses an apparatus comprising a delta-sigma modulated signal having its bits inverted by exclusive-OR unit 5100. Hellberg does not disclose that the transmission medium is an standard digital recorder. However, digital recording of one-bit digital signals was well known in the art, as evidenced by Nishio et al. Nishio et al teach a transmission apparatus comprising a one-bit analog/digital converter and digital recorder 45. Since it was known to store such signals in a digital recorder, it was obvious to do so and it would have been obvious to one of ordinary skill in the art to use the teaching of Nishio et al in the invention described by Hellberg. Per claims 8 and 9, the code sequence generator 511 could be programmed with alternating data bits without undue experimentation.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg in view of Nishio et al, as applied to claim 9, in further view of Redfern & Co., GB 1 329 883. The combination of Hellberg and Nishio et al does not disclose a shift register as the control logic (code sequence generator). However, Redfern discloses a pseudo-random sequence that can be generated with a feedback shift register. It was advantageous to use a feedback shift register as it simplifies the circuitry of the apparatus. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the feedback shift register described by Redfern in the combination of Hellberg and Nishio et al.

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Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg in view of Hamasaki et al. Hellberg discloses an apparatus comprising a delta-sigma modulated signal having its bits inverted by exclusive-OR unit 5100. Hellberg does not disclose that a mute signal comprising successive data bits of the same type is outputted in the case of a transmission error. Nevertheless, such a mute signal was well known in the art at the time of invention, as evidenced by Hamasaki et al. The mute signal was an industry standard as admitted by Applicant. In addition, Hamasaki et al teach that a conventional D/A converter with an auto muting feature substitutes the output when a zero-level has been repeated a number of times in the digital signal. Therefore, in light of the abovementioned teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to output a stream of same type data bits in the case of a mute condition.

Allowable Subject Matter

Claims 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

3-5-2003
Brian Tyrone Pendleton
April 29, 2003


FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600